Out of this World: Virtual Worlds in Government
Information Science and Technology Colloquia
November 2, 2011
Andrew Gravatt

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Virtual World Technology

Massively Multiplayer Game

1st Person Shooters

What is Virtual World Technology?

Generic Virtual World Characteristics:

1. *Information is arranged in **3-D and accessed via geo-spatial/spatial referencing.***
2. User is **immersed in information with unique representation in common virtual space.**
3. Experience is **social where users interact with** each other (visual, chat, voice).
4. Content is **user generated and maintained.**
5. Experience is **user controlled.** Visiting a virtual world can be compared to visiting a new country. When a user arrives, they decide what to do next.

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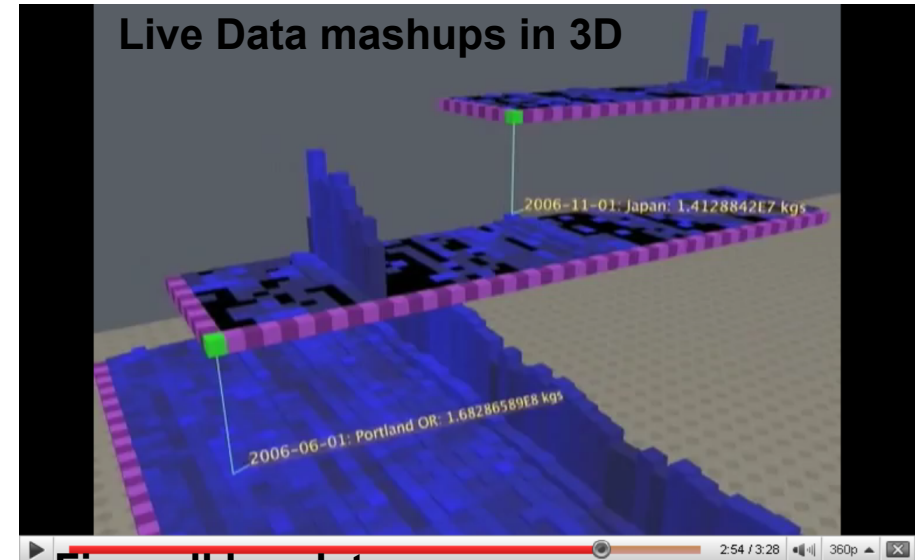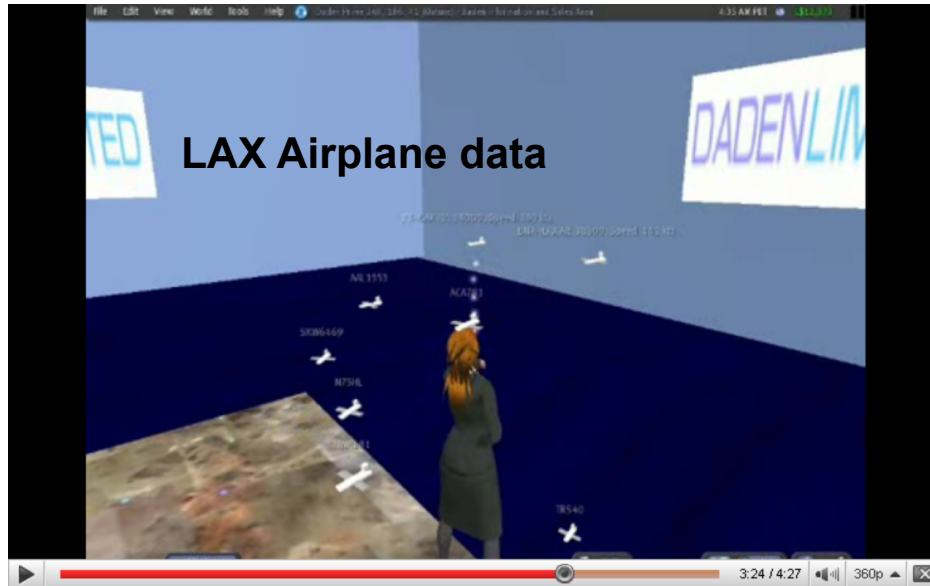
- ➤ **Information Delivery**
- ➤ **Meetings and Conferences**
- ➤ **Education and Training**
- ➤ **Telework**
- ➤ **Continuity of Operations**
- ➤ **Rapid Prototyping**
- ➤ **Analytical Work Spaces**
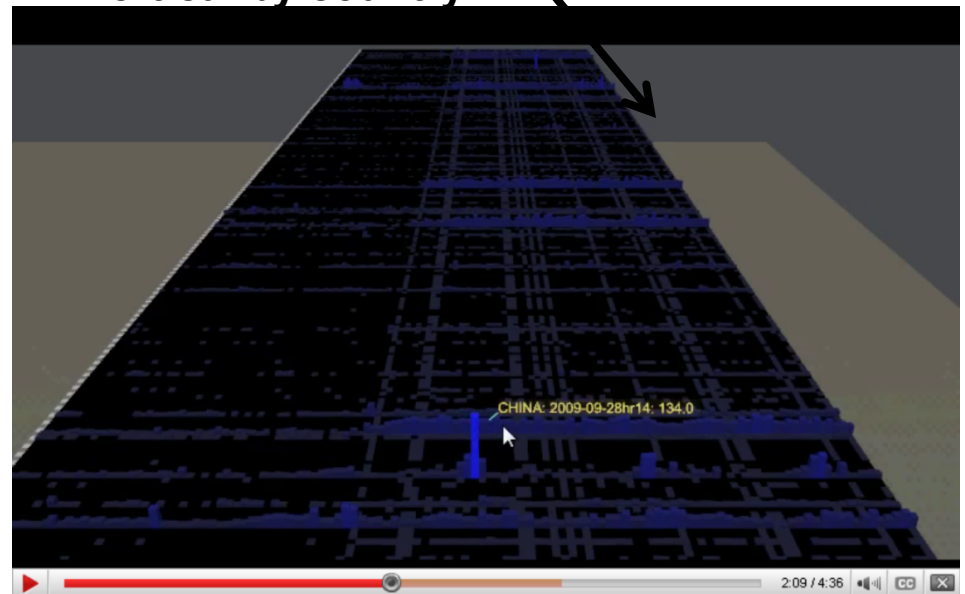- ➤ **Disaster Command and Control**

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LAX Airplane data

Live Data mashups in 3D

2006-11-01: Japan: 1.4128842E7 kgs

2006-06-01: Portland OR: 1.68286589E8 kgs

Firewall log data
Horizontal date/hr
Vertical by country

Group Collaborative Spaces

CHINA: 2009-09-28hr14: 134.0
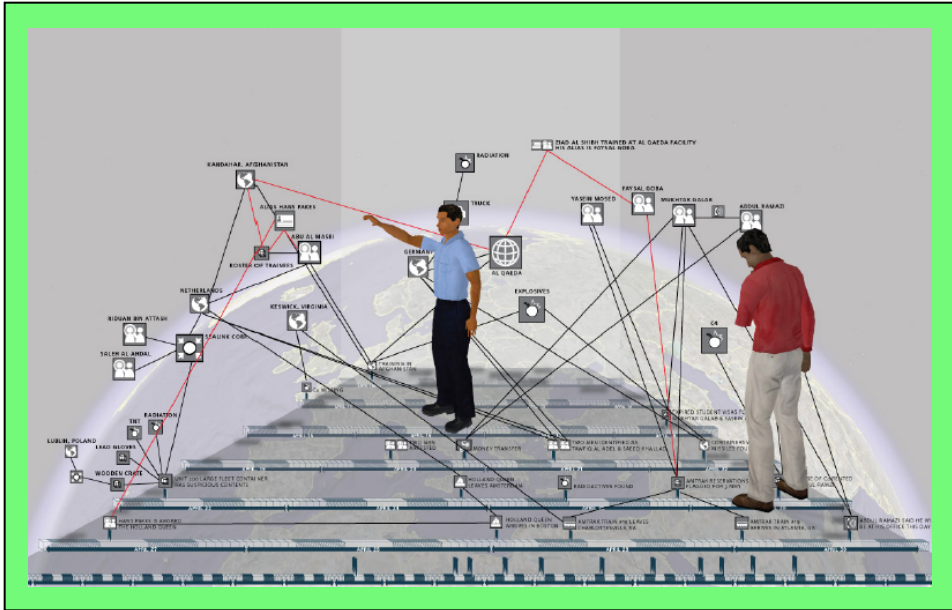
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- **Collaboration**
  - Across agencies
  - From anywhereSynchronous communication (voice, text, body)
  - Asynchronous social media & recording
  - Visualization and manipulation of real-time data
  - Shared documents with collaborative editing
  - Unpredictability of human interaction
- **3-D representation of objects**
- **Intelligent agents and bots**
- **Avatar personalization**
- **Presence and Transference (Snow World)**
- **Green IT**
  - Save on travel expenses
  - Meeting spaces online
- **Can be fun**

- High-tech virtual reality game gives soldiers an escape during excruciating wound/burn treatment.
- Snow World has already been proven to help pediatric burn victims, but Hoffman and Christopher Maani, chief of anesthesia at the USAISR, are conducting the first clinical trial of Snow World for combat burn patients.

Immersive VR for
Pain Control
Doctors see exciting results using SnowWorld

Immersive Virtual Reality distraction is showing great promise for clinical pain control. Firsthand designed and developed SnowWorld with specialists Dr. Hunter Hoffman and Dr. David Patterson, Harborview Burn Center, Seattle. SnowWorld is an interactive journey through an ice canyon designed to deliver an engaging interactive experience within the constraints of a wound care procedure.

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➢ **Emerging Technology**
➢ **Learning Curve: Movement and actions are not intuitive**
  ▪ Input devices (Army Brain Research, Emotiv)
➢ **Access:**
  ▪ Software Client on agency/organization desktop image
  ▪ Security (working across agencies)
    - Network level
    - Avatar level
➢ **Content**
  ▪ Cost of development
  ▪ Ability to share content
➢ **Worlds are not interoperable**

The Problem

➤ **Over 90% of government workers can not access virtual worlds from their desktop.**

➤ **No interagency access to virtual worlds beyond public spaces such as Second Life.**

➤ **Functional requirements for multiple virtual worlds do not exist across government.**

The Solution

- **Government "trusted source" hosting solution for virtual worlds**
- **Security**
  - Secure government network (by government for government)
  - E-authentication level 2—identity of users controlled
  - Trusted source of client software
  - Levels of access
- **Economics**
  - Multiple virtual worlds to meet user requirements
  - Economies of Scale
  - Enables Collaborative Projects
    - Shared 3D Content Repository
    - Software development pool

➢ **Use Cases – Currently Under Development**

- ▪ NDU iCollege-Community of practice and knowledge management

- ▪ USDA-Continuity of Operations exercise

- ▪ DHS-Cybersecurity (2 short vignettes)

- ▪ USAF-Orientation to armed forces medical training facility

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➤ **Creates secure access to common meeting "places"**
➤ **Forges networks of common interests**
  - Creates groups to work on common issues
  - Share best practices & resources
➤ **Offers solutions for multi-agency platform for collaboration**
  - Security resolved
  - Workspaces
  - Communities of Practice
➤ **Economies of scale**
➤ **Provides venues to share resources**
  - Content
  - Contracts
  - Software development costs
➤ **Connects vendors for improvements in platform**
➤ **Offers a model for other government collaborative activities**
➤ **Future meeting places for citizens that humanize large government**

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- ➢ **Silos between agencies that inhibit multi-agency collaboration at all levels of government (federal, regional, state, local)**
- ➢ **Business Models**
  - ▪ Funding mechanisms for multi-agency efforts
    - ▫ Costing models to get economies of scale
  - ▪ Development of software tools to benefit all of the government
  - ▪ IT (e.g., security, databases, etc.)
- ➢ **Sharing digital resources (e.g., content)**
- ➢ **Organizational cultures within and between agencies**
  - ▪ Sharing information
  - ▪ Missions & Goals
  - ▪ Strategic Planning
  - ▪ Policy
  - ▪ Procedures
  - ▪ "How it has always been done"

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iCollege Virtual Campus – Second Life
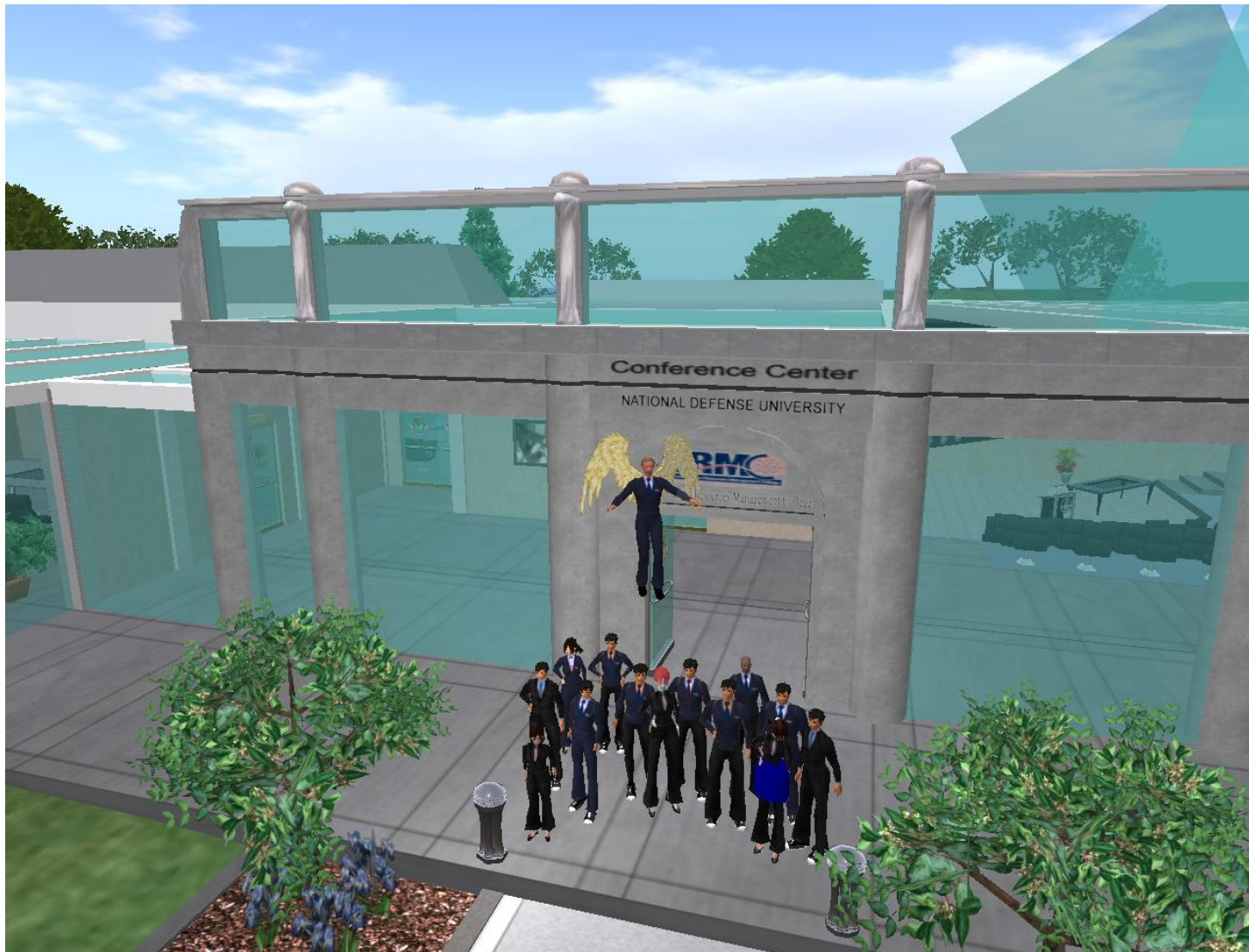
iCollege Auditorium– Second Life

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iCollege Undersea Bar

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First Class in Second Life

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A Class One Year Later

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Last Week's Class

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Sistene Chapel

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International Space Museum

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NASA Collaboration Lab – Try Doing This in Real Life!

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➢ **Virtual Worlds vs. Teleconferencing**

➢ **Federal Consortium for Virtual Worlds – over 3000 members. What's critical mass?**

➢ **Companies are continuing to develop the technology**

- No client necessary – Runs through web browser
- Avatars that look like us
- Avatars with facial expressions via webcam
- Two-factor authentication

➢ **vGov – Trusted source at USDA**

➢ **Tight budgets may put this over the top**

Finally……

A Warning…..

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